

TABLE 3.—*Solar radiation measurements, and determinations of atmospheric turbidity factor, β , Washington, D.C., May 1933*

[Values in italics have been interpolated]

Date and solar hour angle	Solar altitude, h.	Air mass, m.	I_{∞}	I_0	I_1	β	Blue-ness of sky	Atmospheric dust particles per cubic centimeter	Notes: (sky-light polarization, P.) clouds, etc.
May 18									
5:43a	15-29	3.70	<i>gr. cal.</i>	<i>gr. cal.</i>	<i>gr. cal.</i>	0.090		727	
5:39a	16-05	3.58	.812	.596	.514	.080			
5:26a	18-34	3.12	.888	.664	.530	.070			
5:20a	19-44	2.95	.914	.667	.543	.068			
5:01a	23-26	2.51	.990	.706	.570	.070			
4:57 a	24-12	2.43	.997	.711	.573	.072			
3:51 a	37-04	1.65	1.141	.819	.648	.105	5		P=56.4%
3:44 a	38-22	1.61	1.139	.818	.651	.115			

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, Superintendent United States Naval Observatory. Data furnished by Naval Observatory, in cooperation with Harvard, Perkins, and Mount Wilson observatories. The differences of longitude are measured from central meridian, positive west. The north latitudes are plus. Areas are corrected for foreshortening and are expressed in millionths of sun's visible hemisphere. The total area, including spots and groups, is given for each day in the last column]

Date	Eastern standard civil time	Heliographic			Area		Total area for each day
		Diff. long.	Longi- tude	Latitude	Spot	Group	
1933							
	<i>h. m.</i>	<i>°</i>	<i>°</i>	<i>°</i>			
May 1 (Naval Observatory).....	11 0		No spots				
May 2 (Naval Observatory).....	10 38		No spots				
May 3 (Mount Wilson).....	9 30		No spots				
May 5 (Naval Observatory).....	10 29		No spots				
May 6 (Mount Wilson).....	9 30		No spots				
May 7 (Naval Observatory).....	13 29		No spots				
May 9 (Mount Wilson).....	9 17	-22.0	158.4	-6.0		6	6
May 12 (Mount Wilson).....	11 5	+8.0	147.6	-13.0		4	4
May 13 (Naval Observatory).....	13 8		No spots				
May 14 (Naval Observatory).....	11 11		No spots				
May 15 (Mount Wilson).....	13 0		No spots				
May 16 (Naval Observatory).....	14 7		No spots				
May 17 (Naval Observatory).....	14 39		No spots				
May 18 (Naval Observatory).....	11 34	+12.0	72.0	+7.0		12	12
May 19 (Naval Observatory).....	10 38	+22.0	69.3	+12.0		25	25

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard civil time	Heliographic			Area		Total area for each day
		Diff. long.	Longi- tude	Latitude	Spot	Group	
1933							
	<i>h. m.</i>	<i>°</i>	<i>°</i>	<i>°</i>			
May 20 (Naval Observatory) -----	12 23	+36.0	69.1	+12.0	-----	46	46
May 21 (Naval Observatory) -----	10 34	+49.0	69.9	+12.0	-----	46	46
May 22 (Naval Observatory) -----	11 13	+63.0	70.3	+12.0	-----	93	93
May 23 (Naval Observatory) -----	11 26	-26.0	327.9	+9.0	-----	28	
		+76.0	69.9	+12.0	-----	93	121
May 24 (Naval Observatory) -----	10 19	-15.0	328.3	+10.0	-----	12	12
May 26 (Mount Wilson) -----	12 30	+40.0	353.6	+11.0	6		6
May 27 (Naval Observatory) -----	10 19		No spots				
May 28 (Naval Observatory) -----	11 35		No spots				
May 29 (Naval Observatory) -----	13 56		No spots				
May 31 (Mount Wilson) -----	9 26		No spots				
Mean daily area for May -----							15

PROVISIONAL SUN-SPOT RELATIVE NUMBERS FOR MAY 1933

(Dependent alone on observations at Zurich and its station at Arosa)

[Data furnished through the courtesy of Prof. W. Brunner, University of Zurich, Switzerland]

May 1933	Relative numbers	May 1933	Relative numbers	May 1933	Relative numbers
1	0	11	0	21	12
2	8	12	0	22	11
3	0	13	0	23	17
4	0	14	0	24	12
5	0	15	0	25	8
6	0	16	0	26	0
7	0	17		27	
8	0	18	0	28	0
9	8	19	8	29	
10	8	20	12	30	0
				31	0

Mean: 28 days=3.7.

AEROLOGICAL OBSERVATIONS

[Aerological Division, W. R. Gregg, in charge]

By L. T. SAMUELS

Free-air temperatures during May were considerably above normal at the stations shown in table I, except at Norfolk where they were close to normal. Notwithstanding the positive temperature departures, those of relative humidity were likewise positive at most stations.

In most cases the free-air resultant wind velocities for the month exceeded the normals, except in the upper Mississippi Valley and Upper Lakes region where they

were below normal. Resultant wind directions were, in general, close to normal, except in the southern section where a preponderance of southerly winds occurred.

Upper-air observations were discontinued on April 30, 1933, at Ellendale incident to closing the station on June 30. Hence all the data given in table I are based on airplane observations.